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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Mission Update

MSL-1 transfer into payload canister Jan. 31 in the Operations and Checkout Building.

STS-83

Columbia (22nd flight)
83rd Shuttle flight
Target launch date: April 3, 2:01 p.m.
Pad: 39A
Mission: Microgravity Science Laboratory-1 (MSL-01)
Duration:16 days
Crew: Halsell; Still; Voss; Thomas; Gernhardt; Linteris; Crouch

GOES-K

Geostationary Operational Environmental Satellite-K
Target launch date: April 24
ELV: Atlas I
Pad: 36B
Mission: Next generation weather satellite providing improved weather imagery and atmospheric sounding information.

STS-84

Atlantis (19th flight)
84th Shuttle flight
Target launch date: May 15
Pad: 39A
Mission: 6th Shuttle-Mir Docking; Spacehab-Double Module
Duration: 9 days
Crew: Precourt, Collins, Foale, Noriega, Lu, Clervoy (ESA), Kondakova(Russia). Linenger (STS-81) and Foale change places on Mir.

THE SPACE SHUTTLE Discovery cuts a bright swath through the early-morning darkness as it lifts off from Launch Pad 39A on a scheduled 10-day flight to service the Hubble Space Telescope (HST). Liftoff of Mission STS-82 occurred on-time at 3:55:17 a.m. EST, Feb. 11, 1997. Leading the veteran crew is Mission Commander Kenneth D. Bowersox. Scott J. "Doc" Horowitz is the pilot. Mark C. Lee is the payload commander. Rounding out the seven-member crew are Mission Specialists Steven L. Smith, Gregory J. Harbaugh, Joseph R. "Joe" Tanner and Steven A. Hawley. Hubble was deployed in 1990 and designed to be serviced on-orbit about every three years. STS-82 marks the 22nd flight of Discovery and the 82nd Shuttle mission.

KSC contractors recognized for safety programs and initiatives

NASA KSC Safety hosted an awards ceremony in Headquarters Jan. 23. Acting Deputy Director Jim Jennings recognized KSC contractors for excellent safety statistics, safety initiatives and significant safety program improvements in Fiscal Year 1996. The KSC Safety Awards include:

• The Accident Prevention Certificate, presented to contractors who had no "lost time" accidents for the fiscal year;

• The Safety Initiatives Award, recognizing contractors who have developed, planned and successfully implemented safety initiatives; and

• The Center Director's Award, recognizing contractors who have completed the criteria for the Safety Initiatives Award and verified that they have achieved their established goals resulting in measurable safety program improvements.

Accident Prevention Certificate recipients were: Digital Equipment Corp.; I-Net Inc.; Lockheed Martin Manned Space Systems; NYMA Inc.; Railroad Track Construction Corp.; Sun Coast Services Inc.; Thiokol Corp.; and Wang Federal Inc.

The Safety Initiatives Awards were presented to EG&G Florida and Rockwell Aerospace (now United Space Alliance).

Center Director's Awards were presented to Dynamac Corp.; I-Net Inc.; McDonnell Douglas Space and Defense Systems Inc.; United Space Alliance; and USBI. Awards ceremony photos are on Page 7.

Hubble servicing calls for dazzling array of crew aids and tools

The STS-82 astronauts are carrying with them a tool kit of more than 150 items to help them service the Hubble Space Telescope for the second time.

Mission Specialists Mark Lee and Steve Smith will be performing Extravehicular Activities (EVAs) one and three and Greg Harbaugh and Joe Tanner will service the telescope during EVAs two and four.

When the Lee-Smith team is performing a spacewalk, Tanner will serve as the Intravehicular (IV) crew member, overseeing activities from inside the orbiter. Smith will perform the same function during Harbaugh-Tanner EVAs.

The astronauts spent two years training for their complex mission. The tools and aids are classified as Space Support Equipment (SSE). They range from a simple bag for carrying some of the smaller tools to sophisticated computer-controlled power tools, and are categorized into two subgroups: Crew Aids and Tools.

Crew Aids are fixed-in-place or portable equipment items, other than hand tools, used to assist crew members in accomplishing mission tasks. Crew aids include handrails, handholds, transfer equipment, protective covers, tethering devices, grapple fixtures, foot restraint sockets, and stowage and parking fixtures.

Tools are hand-operated devices that allow spacewalking astronauts to more efficiently perform intricate, labor-intensive tasks. Tools can be used to perform such tasks as accessing

(See HUBBLE, Page 8)

Sterling Smith gets additional post in payloads world


Smith

Sterling Smith has been designated acting director, Payload Ground Systems in the Payload Processing Directorate. He continues to hold his present title of deputy director of Payload Processing.


Bartell

Editor's Note: A current photo of Shannon Bartell was not available for the Jan. 31 Spaceport News issue announcing her Senior Executive Service appointment as director, Payload Flight Systems, Payload Processing Directorate.

Note of Appreciation

Editor's Note: The following message is from Tom and Rob Breakfield to their fellow KSC employees:

During the past several weeks the reality of the frequently used expression, "The KSC family," has been very indelibly impressed upon our hearts with the incredible outpouring of concern, love and prayers for our family in the death of our father and grandfather, Paul T. Breakfield Jr. Words cannot express the encouragement and consolation that we have received from your many acts of kindness that have helped us through this tragedy. Thank you for the cards, letters and phone calls of encouragement, flowers and contributions in his memory, and most of all for your prayers. To those of you who participated in the recovery, and those who gave their time and effort to speed that process, we will forever be grateful. The Kennedy Space Center workforce truly is "family" and we are very proud to be part of it.

Employees of the Month

HONORED in January — (front row, from left) Cathy Giesler, Procurement Office; Joyce Stevens, Installation Operations; Sharon Pine, Space Station Hardware Integration Office; (back row, from left) Michael Bolger, Engineering Development; Richard Bates, Shuttle Processing; Dicksy Hansen, Chief Financial Officer's Office; Suzanne Stuckey, Chief Counsel's Office; Bet Eldred, Administration Office; and Steve Chance, Payload Processing. Not shown: Daniel McNerney, Safety and Mission Assurance; and SuSu Wong, Logistics Operations.

KSC managers to speak at Quality Conference in March

KSC will be well-represented at the 1997 Conference on Quality in the Space and Defense Industries, being held March 3–4 in Houston.

The conference is sponsored by the Aviation/Space and Defense Division of the American Society for Quality Control. NASA Associate Administrator for Policy and Plans Alan Ladwig will deliver the keynote address. Other speakers include Kent Black, chief executive of United Space Alliance, the NASA Space Flight Operations Contract organization (SFOC).

This year's conference focuses on the new partnering initiatives emerging between NASA and the Defense Department. Issues such as acquisition reform, rapid change initiatives and the changing role of quality will be discussed.

Panels will focus on such topics as *Measuring for Success, Single Process Initiative* and *Integrated Compliance Management*.

Also participating from KSC are Tom Breakfield, director of Safety and Mission Assurance and Hector Delgado, KSC Safety and Shuttle Upgrades Directorate.

For more information about the conference, contact Helen Schneider, tel. 817 776-3550.

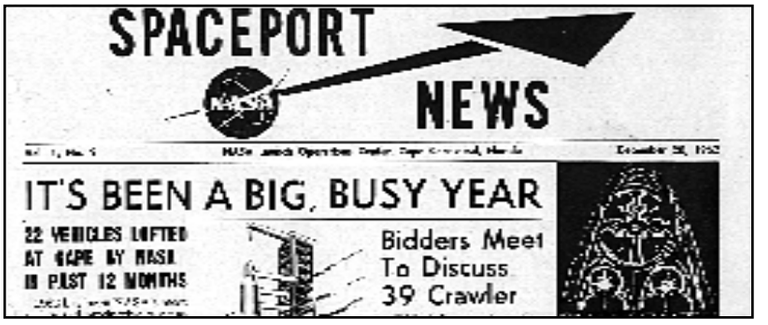
Spaceport News goes electronic

The "under construction" sign frequently seen on fledgling Web site pages could easily apply to transition the *Spaceport News* is undergoing.

The 35-year old publication is being converted to an all-electronic production process that will save money and allow inclusion of more late-breaking news.

Spaceport News was first published on Dec. 13, 1962. There was no KSC then, just the NASA Launch Operations Center on Cape Canaveral. Staffers pecked away on manual typewriters and their stories would later be set into type by a printer. The production process took longer and required more people expert in different skills. Photos were sized manually using a proportion wheel.

With desktop publishing, the editor becomes a graphics designer, photographer and writer all rolled into one. Knowledge of the hardware and software also is essential. Support for the conversion is being provided by Sherikon Space Systems' Graphics Department .


SPACEPORT NEWS
IT'S BEEN A BIG, BUSY YEAR
22 VEHICLES LOFTED AT CAPE BY NASA IN PAST 12 MONTHS
Bidders Meet To Discuss 39 Crawler
AN EARLY issue of *Spaceport News*, scanned with the Silverscanner III.

The electronic *Spaceport News* is produced on a Macintosh PowerPC, chosen for its compatibility with Microsoft Word documents generated on IBM-type PCs. A second hard drive will be added to provide adequate memory.

Each issue is laid out in Pagemaker 6.0. Photos are either scanned in using a LaCie Silverscanner III and Adobe Photoshop 3.0, or converted into Tiff files directly from electronic sources such as digital photo files on the Internet.

Photos and text are given to the printer, C&R Designs, Titusville, stored on a SyQuest disk with 88 megabytes of memory. A single issue, without embedded photo images, can take up as much as five megabytes of memory.

At C&R Designs, the electronic files are printed to an image setter which prints directly to film.

Eventually, the paper will go totally electronic and the issue and photos will be transmitted via modem.

Indea Jackson (left) helps Fritz Widick with paperwork while Helen Johnson and Cindy Wicker check forms.

KSC bids farewell to old friends and coworkers departing NASA

The third civil service buyout opportunity for NASA employees came to a close Feb. 3 as the last workers completed processing out. Altogether 168 KSC employees accepted the buyout opportunity, some as retirements and others as resignations. Buyouts also were held in 1994 and 1995 and 152 and 165 employees, respectively, took advantage of the offer to receive a bonus of up to $25,000. On these three pages, we bid farewell to friends and coworkers. Their contributions to America's space program will be remembered, and their presence missed. Unfortunately, the large number of departures precluded individual writeups. Photos were taken during processing out activities Jan. 31 and Feb. 3 in the Headquarters Cafeteria and KSC Training Auditorium.

Barbara J. Adair, EY-H

Thomas H. Allen, PK-F4

Clara M. Anderson, PH-E

Joseph A. Aurelia, BR-D2

James W. Austin, BR-C

Charles A. Bachstein, LO

Carrie E. Backus, BE-E1

Dennis Bahm, IM-NAO

Dean E. Barwick, PK-E3

Frank Merlino, PZ-A2, was one of the many NASA employees who processed out Jan. 3, 31 and Feb. 3. Helen Johnson was one of the helpful staffers on hand to explain all the paperwork.

Garen H. Bassett, DL-HDD

Howard E. Baxter, IM-W

Katherine D. Beatrice, BR-B3

Laura J. Bellamy, EI-C

David R. Benedik, GG-C1

Curl L.Bentley, LO-MSD

Edgar R. Bertram, IM-FEO

Claude E. Blackstone , PH-B5

Robert J. Bourne, BE-B

Darrell E. Boyer, DM-ASD

David C. Bragdon, BL-D

Mike B. Brock, BE-F4

Darwin V. Brown, HM-INF

Harriet M. Brown, IM-SST

Elizabeth J. Brown, OP-ESO

Robert Otis Buck, BL-D

Laurrie L. Buckley, PH-B3

Zack H. Byrns, MK-SIO

Thomas L. Cain, PH-B5

Betty P. Camp, GG-C2

Warren L. Camp, HM-CIC

Michael J. Cardone, BE-C

Francis E. Carter, PZ-B

Bruce E. Chamberlain, OP-AMO

Leonard W. Chapman, PK-G3

Julie E. Clements, BR-D3

Joanne J. Cobbs, HM-PER-3

Gary P. Cogan, EY-H

Kenneth W. Colley, MK

Joseph D. Collner, PK-F3

John T. Conway, BB

Tammy K. Conway, DE-PCO

Theodore Cook Jr., EY-L

Jeannette K. Cooper, PK-E

John R. Copeland, PZ

Richard M. Davis, DE-TPO

Francis X. Durso, DE

Joe Aurelia (left), BR-D2, Nina Policicchio, LO-SOD-1 (second from left) and Marge Elrod (right) review forms in the Headquarters Cafeteria as Maria Smith and Sharon Lowry stand by ready to answer questions. Of the 168 NASA KSC employees who took the buyout, 127 were retirements and 41 were resignations.

Brenda Webb (left) chats with Roger Pearce, Laura Bellamy and Les Rostosky.

Marjorie T. Elrod, HM-PER-3

Charles V. Fiers, BR-B3

Joseph W. Ford, EY-L

Charles A. Francois, HM-CIC

Robbin C.Frick, PZ-B3

Malcolm W. Fuller, EI

Don D. Gardner, DM-ASD

Joseph E. Garner, PK-G4

Thomas W. George, PZ-A4

David L. Gerber, IM-ADM

William B. Glaser, PK-F5

John A. Godbold, BE-E1

Todd A.Graham, DM-ASD

Joseph L. Green, PA-ESB

Ruth H. Hall, IM-ENV

Manuela C. Hansen, BR-D

Brian N. Harris Jr.,PH-B

Lori P. Hicks, OP-MSO

Cedric Hill, PK-H3

G. Wyckliffe Hoffler, JJ

Timothy A. Hudson, EY-L

Marisa T. Hueckel, BR-B1

George H. Hughes Jr.,EY-K

James B. Jackson, MS

Cynthia L. Jenkins, DE-TPO

Charlotte E. King, JJ

Brad E . J. Kitayama, BE-F3

Robert C. Koning, IM-FFO

Michael G. Kraus, PK-F4

Marge Elrod (foreground, left) and JoAnn Cobbs complete processing out activities in the cafeteria. Altogether 848 NASA employees agencywide accepted the buyout offer. The KSC total of 168 was second only to Marshall, which numbered 179 separations.

E. Ann Kreuzinger, BR-B2

Thomas G. Kreuzinger, BR-D2

J. V. Laclave, PK-H6

John W. Larson, LO-SOD-3

Carl L. Lennon, PZ-B

William Kenneth Lewis, PK-E3

John R. Lyon Jr., LO

Arthur J. Mandler, OP-MSO

Thomas Mariani, LO-ENG-2

Charles B. Mars, EC

Jonice B. McCaskill , BB-B

Charles A. McEachern, BL-C2

John F. McInerny, DM-DTL

Vernon B. McDaniel, BR-D1

Frank J. Merlino, PZ-A2

Patricia H. Metcalfe , PH-B3

Thomas W. Miller, DM-MGD

Kenneth J. Miller, EY-M

Loristean R. Mitchell, OP-ESO

Joan D. Molleur, PK-E

William I. Moore, LO-MSD

David W. Moxley, LO-SOD

Paul W. Moxley, PK-G6

James T. Mullin, PK-D

William R. Munsey, JJ

Walter T. Murphy, DE

Jo E. Murphy, IM

Larry A. Murray, PK-D2

Richard P. Nelson, EY-L

Terrence M. O'Shea, EI-F

Phyllis A. Onken, GG-B

Alan J. Parrish, CD

Howard Baxter reviews paperwork with Sharon Lowry while Dana St. James looks on in the background.

Joe Aurelia (left), Catherine Beatrice (second from left) and Tom Garland (right) complete forms with help from Ineda Jackson (second from right).

Martin B. Pearah, IM-F

Raymond W. Pecaut, DL-DSD

Brian P. Phelan, PZ-B2

Gary A. Phillips Jr., EY-J

Roger Pierce, DL-SDD

Tracy T. Pike, BR-B1

Patrick T. Pinkowski, PZ-B2

Antonina T. Policicchio, LO-SOD-1

Clinton Dale Pope Jr., PZ

Betty B. Porterfield, GG

J. David Post, PK-E4

Richard D. Purvis, DE

Larry V. Richardson, IM-W

Charles B. Roberts, BE

Andres Rodriguez, BR-D3

Ramona L. Rogers, HM-WIO

Leslie John Rostosky, DL-DSD

Richard W. Russell, PK-D1

Jeanette R. Scheving, GG-C3

Paul W. Schmid, PK-H7

Lynn R. Shepard, IM-FFO

Anne M. Sigg, IM-FCC

Christopher K. Sigg Jr., IM-FEO

Larry R. Sloan III, IM-FFO

Jackie E. Smith, DL

Farley W. Stallard, EY

Rex C. Stanley, PZ-B1

John R. Styles, BB-D

John A. Taegel, EY-F

Nicholas J. Talluto, GG

Charlie Mars (left) and Gary Phillips are elated about leaving the working world behind.

Mark J. Tantillo, PZ-A3

Max G. Taylor, BR-D

Mark E. Terseck Jr., IM-FFO

James A. Thomas, CD

Garland L. Thomas, EI-C

Martha Janet Thompson, IM-FEO

Carol C. Tibbetts Jr., IM-W

Steven L. Tilson, BE-E3

Jeffrey K.Venable, EY-L

Nancy M. Wall, PZ-C

Jack L. Warwick, IM-W

Ann H. Watson, OP

Darrow L. Webb, BE-F

Brenda J. Webb, PK

Barbara L. Weber, LO

Carol J. Weber Jr., PZ-D

David M.Wentworth, DE-TPO

Andrew E. Wheeler, DL-HDD

Erik L.Whitehead, BL-D

Herman K. Widick, PH-B3

James J. Williams, BL-C1

W. Paula Williams, GG-C1

Alfred D. Willis, PZ-C1

Douglass R.Wilson, PH-B3

Christopher M. Winiewicz, GG-C3

Julia R. Winn, DE

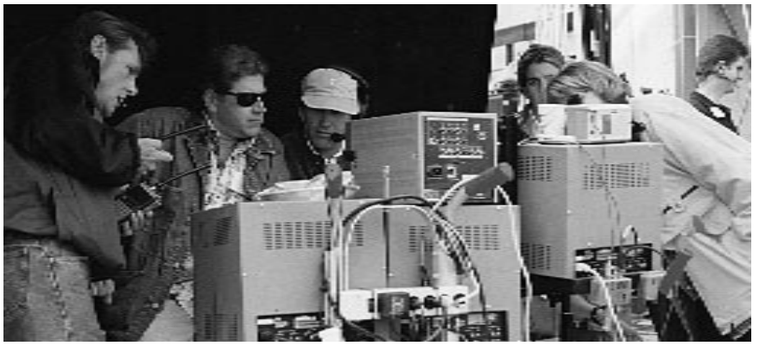
Charles Larry Wood, PK-E1

Dale A. Zeigler, OP-MSO

Tony R. Zito, EY-J

Nina Policicchio and Irby Moore chat over a cup of coffee in the Headquarters Cafeteria while processing out.

Cameras roll at KSC Press Site



THE KSC PRESS SITE was transformed into a film stage for a brief period on Jan. 29, when Warner Brothers completed a shoot for the upcoming feature film *Contact*, based on the bestseller by late astronomer Carl Sagan. In photo at top, the scale of a motion picture production is evident as extras, actors and actresses and staff swarm over the grandstand. Above, Director and Producer Robert Zemeckis (second from left); First Assistant Bruce Moriarty (left) and Photography Director Don Burgess (third from left) review a take on video to decide whether to keep it or shoot again. At left, the film crew shoots a closeup involving one of several helicopters detailed for the scene.

CONTACT is about humanity's first brush with extraterrestrial life. Besides Jodie Foster, Matthew McConaughey and James Woods, it will star John Hurt, Tom Skerritt, Rob Lowe and Angela Bassett. In this scene at left, the double for Jodie Foster, her hair pulled tightly back, is visible at the podium. Filming at the Press Site took place over a two-day period before switching to the NASA Causeway for a crowd scene involving approximatelys 2,000 extras.

SHUTTLE Processing Director Bob Sieck (left),USA Associate Program Manager of Ground Operations Mike McCulley (center) and USA Ground Operations Group Technical Manager Ed Adamek (right) present the SFA team award to USA workers (second from left) Dave Bethard; Monzy Matthews; Katie Brenna; Elaine Lovel; and Dori Swift. Missing is Judy Cassidy.

KSC workers honored with Silver Snoopies and SFA team award

A Space Flight Awareness (SFA) team award and 20 Silver Snoopies were distributed to KSC employees in January.

The following contractor employees were honored with the prestigious Silver Snoopy award: From Boeing North American, Stephen Bauder; from EG&G Florida, Bob Browning, Doug Carraway, Bob Castlen, Kevin Fresa, Richard Hall, Larry Jewell, Steve McGovern, Huan Truong and Rosemarie Wright; from Sherikon Space Systems, Bob Burns and Frank Kiep Jr.; from United Space Alliance, Bob Chiodini, Harold Shackelford, Steve Anderson, George Gross and Dave Van Den Beldt; and from USBI, Carmen Charlton.

NASA employees Tom Purer in the Safety and Mission Assurance Directorate and Connie Stallings in the Administration Office also received Snoopies.

Presented with the SFA award was the USA Environmental Engineering Team of Katie Brenna, lead; Dave Bethard; Judy Cassidy; D. Elaine Lovel; Monzy Mathews and Dori Swift, all of USA's Environmental Engineering and Permit Management Group.

The team developed comprehensive improvements to the process under which Space Flight Operations Contract (SFOC) projects are assessed for environmental impact and compliance. They developed a user-friendly environmental checklist that applies to any and all SFOC work. They also made it easier for organizations to identify under what conditions the checklist must be completed.

"The original list was very generic and people didn't know what kind of information was being sought," Brenna said.

The new list includes about 40 items which should be considered before work can take place, such as whether land-clearing is required or whether industrial wastewater will be generated.

In addition, the team initiated the placement of liasons who are available to answer questions on-site about environmental compliance issues. They also created a database to track the status of all SFOC projects with environmental impact or potential impact through the full duration of each effort.

"Regulations may change, or there may be changes in the project itself that could be relevant to environmental compliance," Brenna noted.

The effort has helped improve environmental awareness among USA employees, too. A survey showed a 65 percent positive response to the question, "Has filling out Environmental Compliance Checklists increased your awareness of environmental requirements?"

ACCEPTING the Safety Initiative Award for EG&G is Jack Bokash (left) and for Rockwell, Norm Murphy (right) with Acting Deputy Director Jim Jennings doing the honors.

1996 KSC Safety Awards

CONTRACTOR officials accepting the Accident Prevention Award from Jennings (center) are (from left) John Falzone and Linda Jennings, Sun Coast Services; Ray Haverkos, NYMA; Jan Garavano, Digital Equipment Corp.; Curt Satterthwaite, I-NET; Juan Ramirez, Lockheed Martin; Mark Simmons, Railroad Track Construction Corp; Ron Bartcher, Wang Federal; and Sharon Wright, Thiokol Corp.

JENNINGS (center) presented Center Director's Awards to (from left) contractor officials Jim Hillis, I-NET; Doug Britt, Dynamac; Jimmy Rudolph, USA; Dick Beagley, USBI; and Case Van Dyke, McDonnell Douglas.

Hubble. . .

(Continued from Page 1)

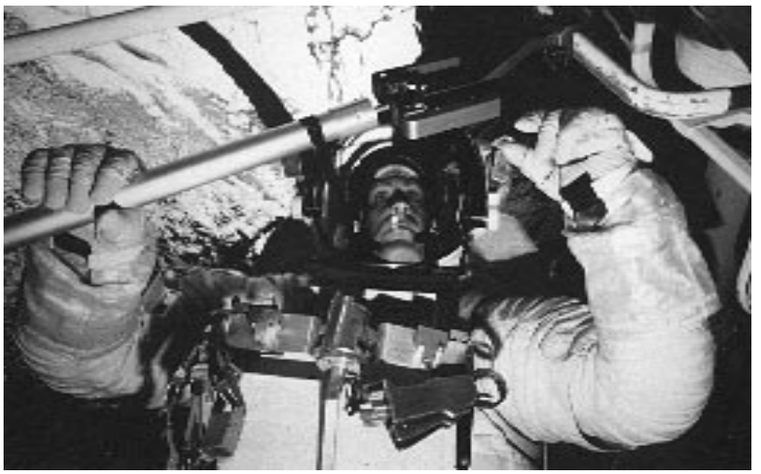
equipment bays on both the orbiter and the telescope, to restraining crew members, tools and hardware, or to provide temporary storage of hardware items such as nuts and bolts, or to allow manual operation of spacecraft and EVAs.

Among the STS-82 tools are a Power Ratchet Tool (PRT), made of titanium and aluminum and designed for tasks requiring controlled torque, speed or turns.

The Multi-setting Torque Limiter (MTL) is provided to prevent damage to hardware due to the application of torque which may exceed design limits. Multi-setting torque limiters are used in conjunction with the power or hand tools that interface with bolts and latches on the telescope.

Another tool is the Pistol Grip Tool (PGT), a unique piece of hardware designed according to the recommendations of the first Hubble servicing crew.

"... Everything we do is very dependent on proper settings of tools that we're using," said Mission Specialist and EV 3 Gregory Harbaugh,"you don't want to over-torque a bolt for example and twist something off." It's written into the EVA checklist to call off the torque and number of turns for a particular task before it's performed, Harbaugh noted.



MARK LEE (left), trains underwater at Marshall Space Flight Center. The STS-82 tools and aids are installed throughout the orbiter payload bay as well as on the middeck, aft flight deck and airlock of the orbiter. Below, Joe Tanner prepares to go underwater in the tank at Johnson Space Center. The four spacewalking astronauts have been crosstrained so that anyone is capable of performing any given task. Throughout the EVAs, the Flight Support System holding Hubble in the payload bay will be rotated so that the area being worked on faces foward to provide better visibility and access by the robot arm.

Training included extended hours in water tanks at both Johnson Space Center and Marshall Space Flight Center. The astronauts wore EVA suits and worked with full-sized mockups of the telescope and protective carriers that contain the replacement instruments and tools.

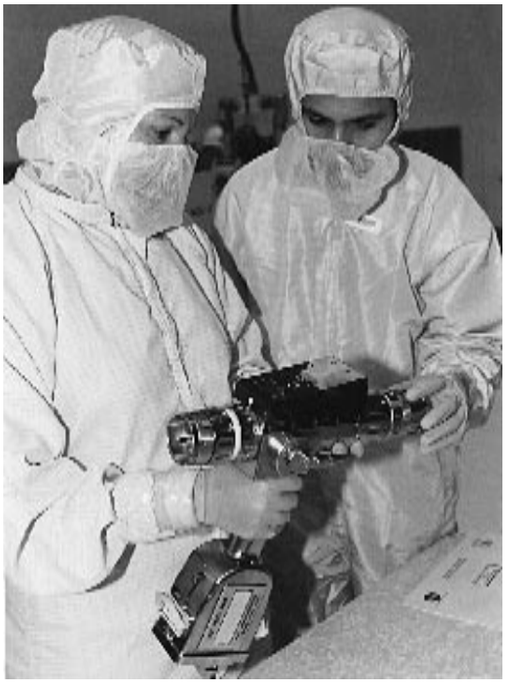
"... The suit weighs about 300 pounds ..." said EV 2 Steven Smith. "... It takes some time to learn how to use it. Your flexibility, reach, visibility, etc., is really diminished because the suit is so bulky — it has to be to protect us, so you have to learn how to use the suit."

The training also included rehearsing servicing procedures on an air-bearing floor at Johnson, which closely matches the feel of moving large objects around in space.

Virtual reality is another EVA training tool. Virtual reality proved to be beneficial during the first Hubble servicing as an effective method for choreographing verbal cues between the spacewalking astronauts and the crew inside operating the Shuttle's robot arm.

"... Each one of these servicing missions allows us to restore lost redundancy in the telescope...," observed STS-82 Commander Ken Bowersox. "But they also allow us to bring the instruments up to the latest level of technology, which is what we're doing now.

"We're taking a telescope which is designed back in the '70s basically..." he continued, "And we're bringing the technology up to date for the '90s, and we'll be able to do that again for the next mission, which is right around the year 2000."



IN KSC's Vertical Processing Facility, Louise Kleba of the Vehicle Integration Test Team (VITS) and engineer Devin Tailor of Goddard Space Flight Center examine the Pistol Grip Tool. The PGT is a self-contained, microprocessor-controlled, battery-powered, handheld tool. It also can be used as a non-powered ratchet wrench. The PGT's microprocessor can be programmed to control limits for torque, speed, number of turns and angle.

John F. Kennedy Space Center

Spaceport News

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Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, PA-MSB. E-mail submissions can be sent to Barbara.Compton-1@kmail.ksc.nasa.gov

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